

# **FURUNO**

# **OPERATOR'S MANUAL**

---

INTERFACE UNIT

---

**MODEL** IF-5000/5001

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**FURUNO ELECTRIC CO., LTD.**  
NISHINOMIYA, JAPAN

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-Your Local Agent/Dealer

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(KAOK)

PUB. No. OME-42740  
IF-5000/5001



\* 0 0 0 8 0 6 7 3 5 0 0 \*



# SAFETY INSTRUCTIONS

"**DANGER**", "**WARNING**" and "**CAUTION**" notices appear throughout this manual. It is the responsibility of the operator of the equipment to read, understand and follow these notices. If you have any questions regarding these safety instructions, please contact a FURUNO agent or dealer.

The level of risk appearing in the notices is defined as follows:



## DANGER

This notice indicates a potentially hazardous situation which, if not avoided, will result in death or serious injury.



## WARNING

This notice indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



## CAUTION

This notice indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury, or property damage.



## WARNING



### Do not open the equipment.

Hazardous voltage which can cause electrical shock, burn or serious injury exists inside the equipment. Only qualified personnel should work inside the equipment.

### Do not disassemble or modify the equipment.

Fire, electrical shock or serious injury can result.

### Turn off the power immediately if water leaks into the equipment or the equipment is emitting smoke or fire.

Continued use of the equipment can cause fire or electrical shock.

### Do not place liquid-filled containers on the top of the equipment.

Fire or electrical shock can result if a liquid spills into the equipment.

### Do not operate the equipment with wet hands.

Electrical shock can result.

### Keep heater away from equipment.

Heat can alter equipment shape and melt the power cord, which can cause fire or electrical shock.



## CAUTION

### Use the proper fuse.

Use of a wrong fuse can result in fire or permanent equipment damage.

### Do not use the equipment for other than its intended purpose.

Personal injury can result if the equipment is used as a chair or stepping stool, for example.

### Do not place objects on the top of the equipment.

The equipment can overheat or personal injury can result if the object falls.

## \* \* \* C O N T E N T S \* \* \*

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SPECIFICATIONS OF IF-5000/5001 INTERFACE UNIT

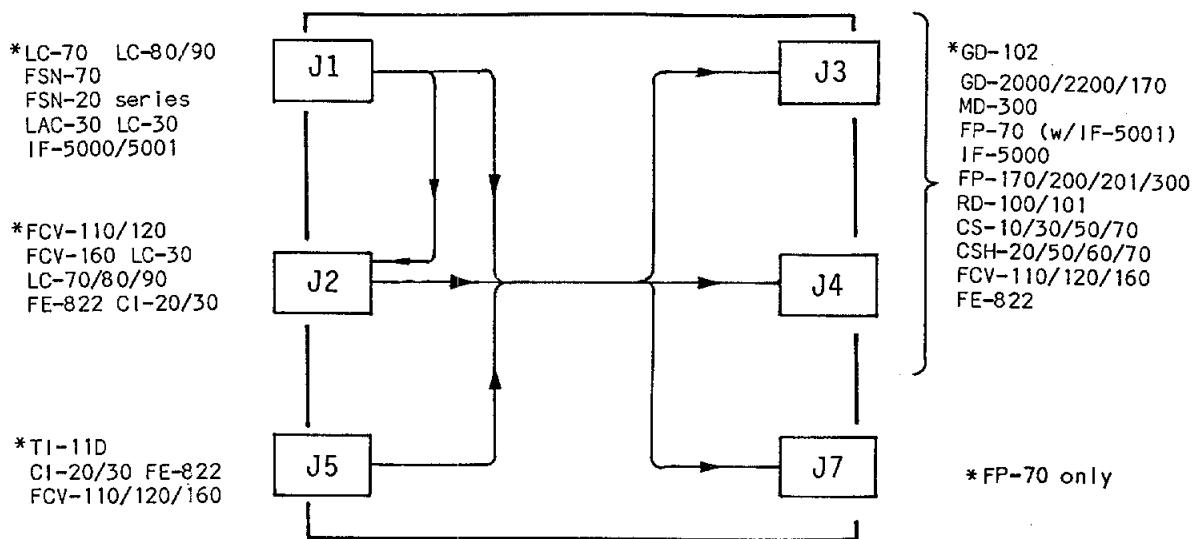
The interface unit IF-5000/5001 takes in various navigational data from the satellite navigator, loran coordinator, Decca coordinator, water temperature indicator, echosounder, current indicator, etc., and arranges them in series Communication Interface Format so that the complex data can be transferred to external devices such as X-Y plotter, Video Plotter, Remote Display, etc. Two types of interfaceunits are available; one is a separate type with independent chassis (IF-5000) and the other is a built-in type (IF5001) which can be fitted in Printer FP-70.

Characteristics

1. Input Data: Two dual way input terminals for Sat/Nav FSN-20/21/70, loran LC-30/70, Decca Navigator with L/L coordinator DP-80C, Color Video Sounder (Depth) FCV-series, and one single way input terminal for Water Temperature Indicator TI-10D/11D, Current Indicator CI-20/30.
2. Output Data: Time, Position in Lat/Long, Loran TD, Speed and Course of Ship, Range and Bearing to Destination or Waypoint, Water Temperature, Water Depth, Direction and Speed of Current at desired Water Depth. Two CIF data output terminals and one Printer output terminal are provided. Multi-distributer MD-300 is required for more than two CIF external devices.
3. Power Supply: DC 10V to 42V, 10W approx. directly or AC 100/110/220V, 50 to 60Hz, 1 phase (Rectifier needed)
4. Coating Color: 2.5GY-5/1.5 Newtone No.5 (Cabinet)  
(IF-5000) N3.0 Dark grey, mat (Front Panel)

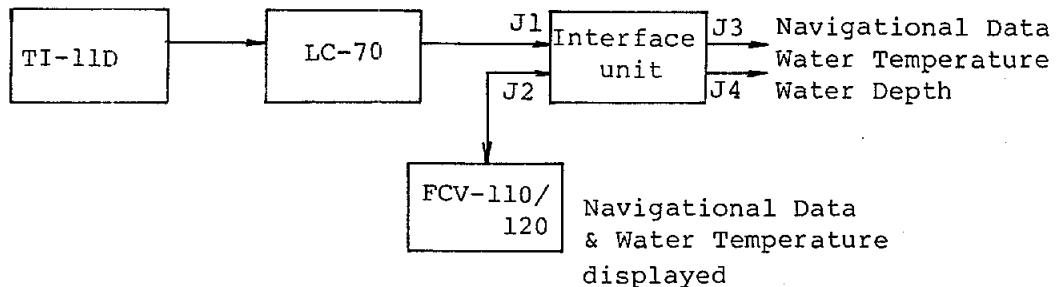
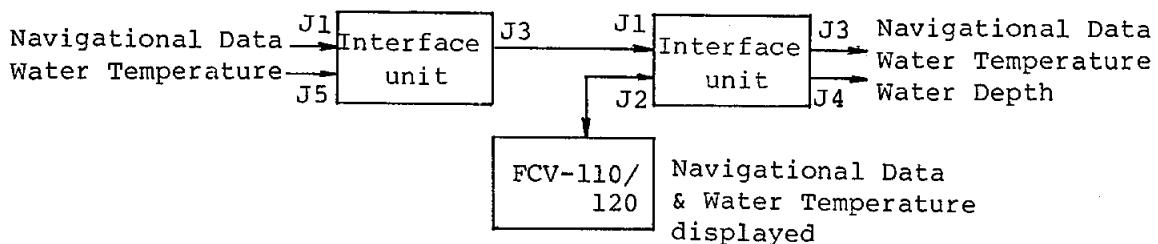
## 2. Data Flow in Interface Unit

The following figure shows data flow and examples of equipments which can be connected to each terminal on the interface unit.



For easy description, it is assumed that equipments marked \* above are connected on each terminal. Navigational data (position in Lat./Long. etc.) obtained by LC-70 is indicated on FCV-110/120 & GD-102 and printed out on FP-70. Water depth detected by FCV-110/120 and water temperature detected by TI-11D can be read on GD-102 and FP-70.

It should be taken into account that no water temperature is displayed on FCV-110/120 in this case. If water temperature is required on FCV display, additional interface unit is requested or the temperature indicator TI-11D is needed to be connected directly to LC-70 as below.



## 3. Complete Set

## A) Separate Type(IF-5000)

No.	Name	Type	Weight	Q'ty	Remarks
1	Main Unit	IF-5000		1	
2	Installation Materials			1 set	W/Bracket
3	Spare Parts			1 set	Fuse, F7161 1.5A, 3 pcs.

## B) Built-in Type(IF-5001)

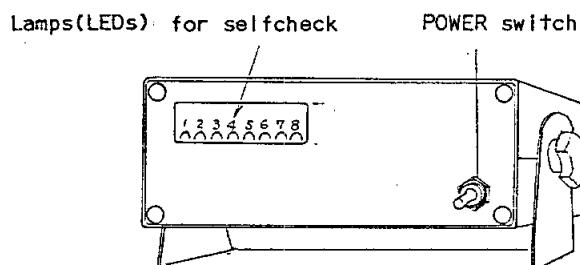
No.	Name	Type	Weight	Q'ty	Remarks
1	Interface PCB	14P0020		1	
2	Installation Materials			1 set	

## 4. Installation Materials

No.	Name	Specifications	Q'ty	
			IF-5000	IF-5001
1	Mounting Bracket	RUA-1003	1	
2	Knob Bolt	KT-B, M6x10	2	
3	Fibre Washer	M6	2	
4	Woodscrew	ø4.8x25	4	
5	Flat Washer	M5	4	
6	Washerhead Screw	M3x8		5
7	Jumper W/connectors	6P-10P		1
8	Jumper W/connectors	5P-5P		1
9	Connector W/wires	10P	5	
10	Connector W/wires	6P	1	
11	Clip-on Lug	FV2-S3.3	8	5
12	Plastic Tube (Heat-shrink type)	ø3x0.25x0.5m		1
13	Cable	CO-SPEVV-SB-C, 0.2sqx5P		10m
14	Label			1

**OPERATION**

In normal operation, the operator is only requested to turn on/off the POWER switch.



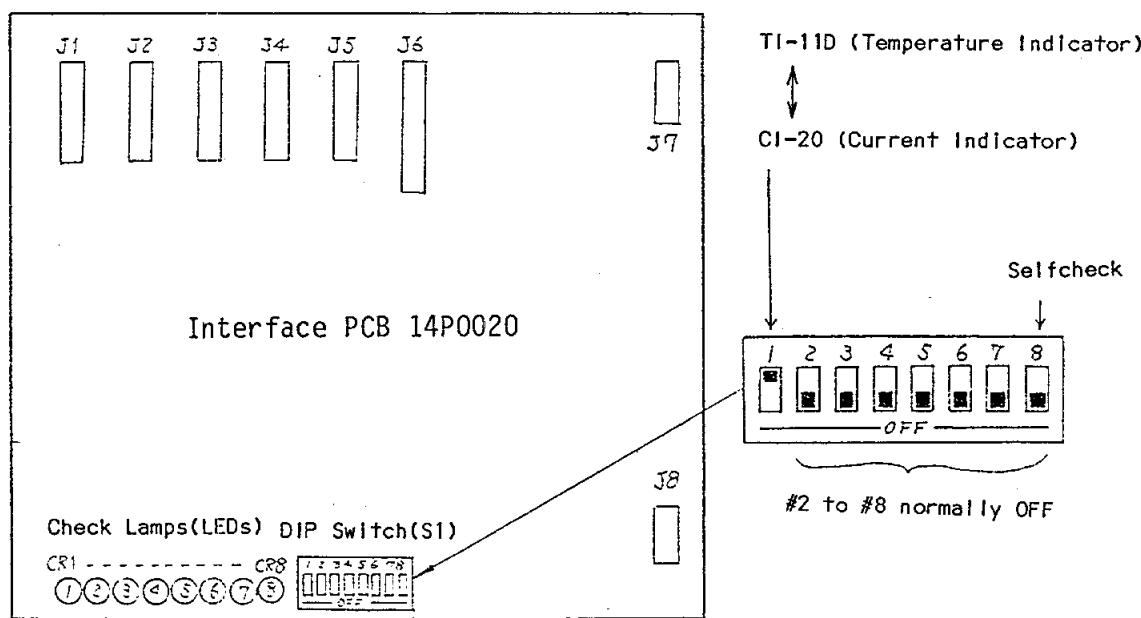
Interface Unit IF-5000

#### 1. Mode Selection on J5

Either Temperature Indicator or Current Indicator can be connected to J5 by changing the setting of DIP switch #1 on the interface PCB.

Turning on (or off) the DIP switch #1 allows Temperature Indicator (or Current Indicator) to be connected to J5.

Note: POWER switch should be turned off, and on after changing the setting of DIP switch.



Front

## 2. Selfcheck

If the unit does not function normally, perform the following selfcheck.

### Check of Memory Circuit (ROM/RAM)

ROM/RAM check can be performed automatically upon turning on the POWER switch.

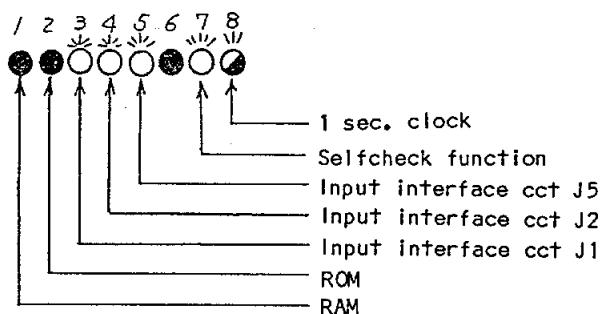
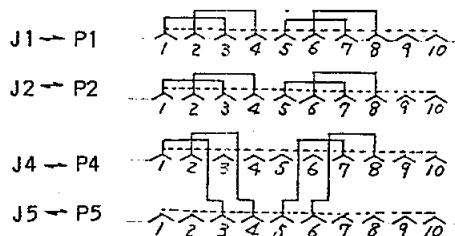
If all the selfcheck lamps on the front panel blink three times at 1 sec interval and go off except the lamp #8, ROM/RAM is normal.

### Check of Memory Circuit (ROM/RAM) and Data Input Interface Circuit

By using the DIP switch #8 and check plugs, both ROM/RAM and data input interface circuit can be checked.

- (1) Turn on the DIP switch #8, then turn on the POWER switch.
- (2) All the selfcheck lamps blink three times at 1 sec interval, then lamps #1, #2 & #6 go off, #3, #4, #5 & #7 remain lighted, #8 keeps blinking with normal ROM/RAM.
- (3) Connect the check plugs shown below to the jacks J1, J2, J4 and J5.
- (4) If the lamps #3, #4 and #5 go off, the data input interface circuits (corresponding to jacks J1, J2 and J5 respectively) are normal. If abnormal function exists with the result of selfcheck being normal, it seems that the trouble is in the external navigator (NNSS, Toran etc.) combined or on the data transfer line.

Jack Plug



Check Plugs  
(to be arranged  
at the spot)

Check Lamps

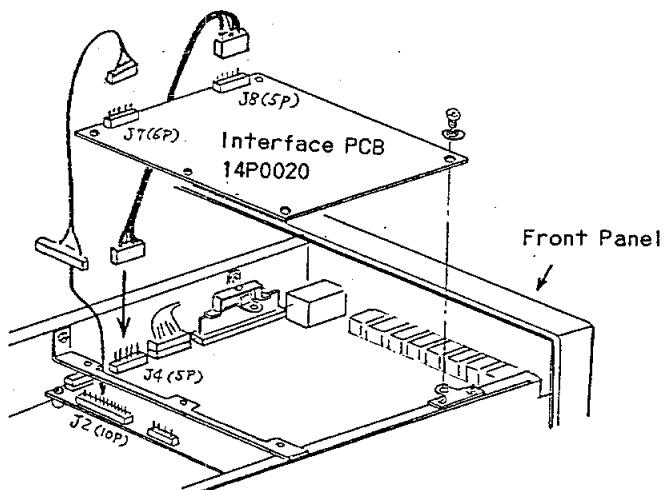
**INSTALLATION****1. Mounting of IF-5000 (Separate type)**

The unit should be located at dry and well ventilated place. It can be mounted with the mounting bracket in tabletop or overhead mount. Refer to page D-1 for the mounting dimensions.

**2. Fitting of IF-5001 (Built-in type) in printer FP-70.**

The following describes how to install IF-5001 into Printer FP-70.

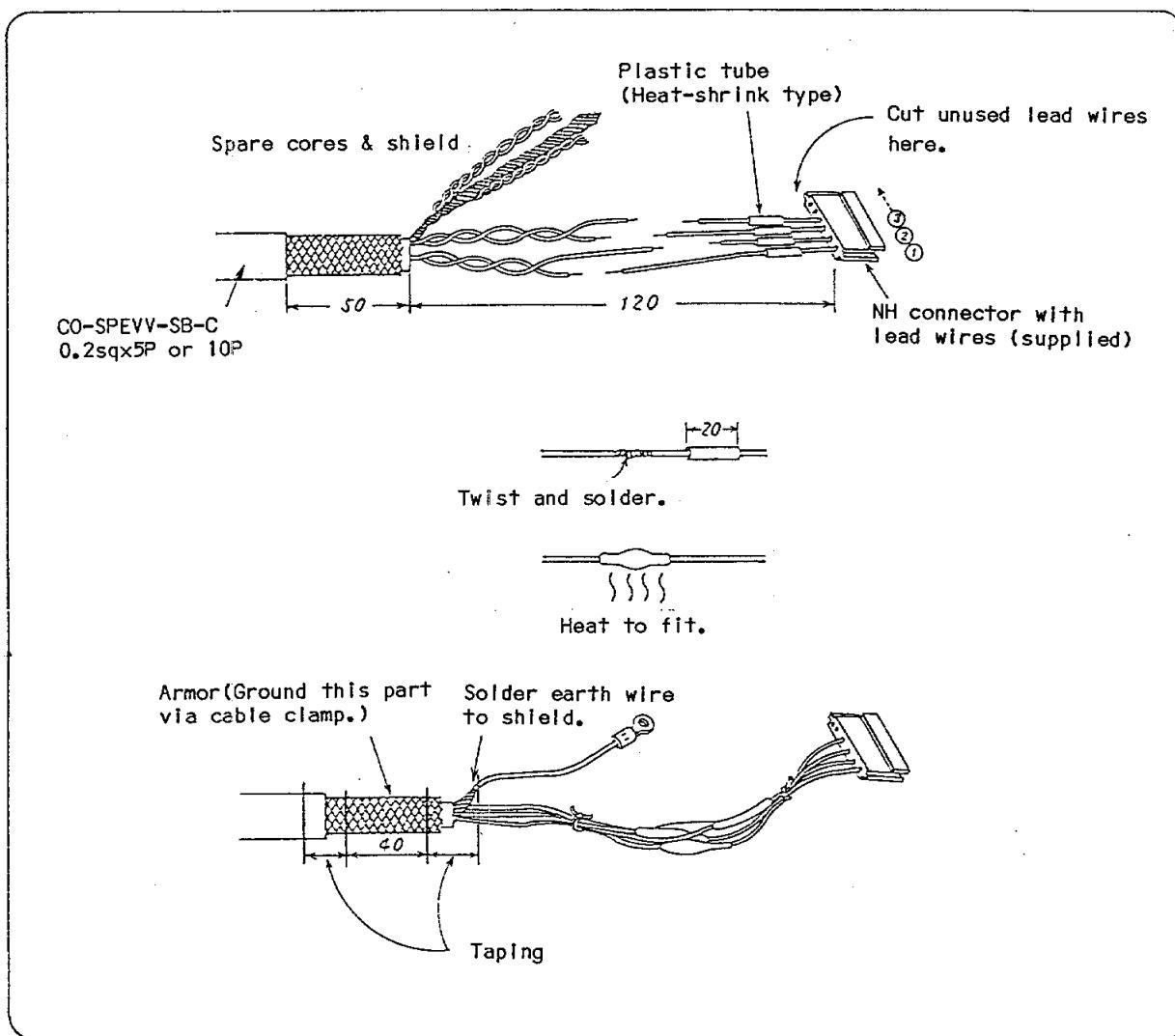
- 1) Remove the top cover by loosening four screws at both sides of the printer.
- 2) Mount the interface PCB 14P0020 with five screws as in the figure below.
- 3) Make connections between interface PCB and the printer.  
J7/J8 on the interface PCB are connected to J2/J4 on the printer respectively with supplied cable.



Printer FP-70 with Top Cover removed

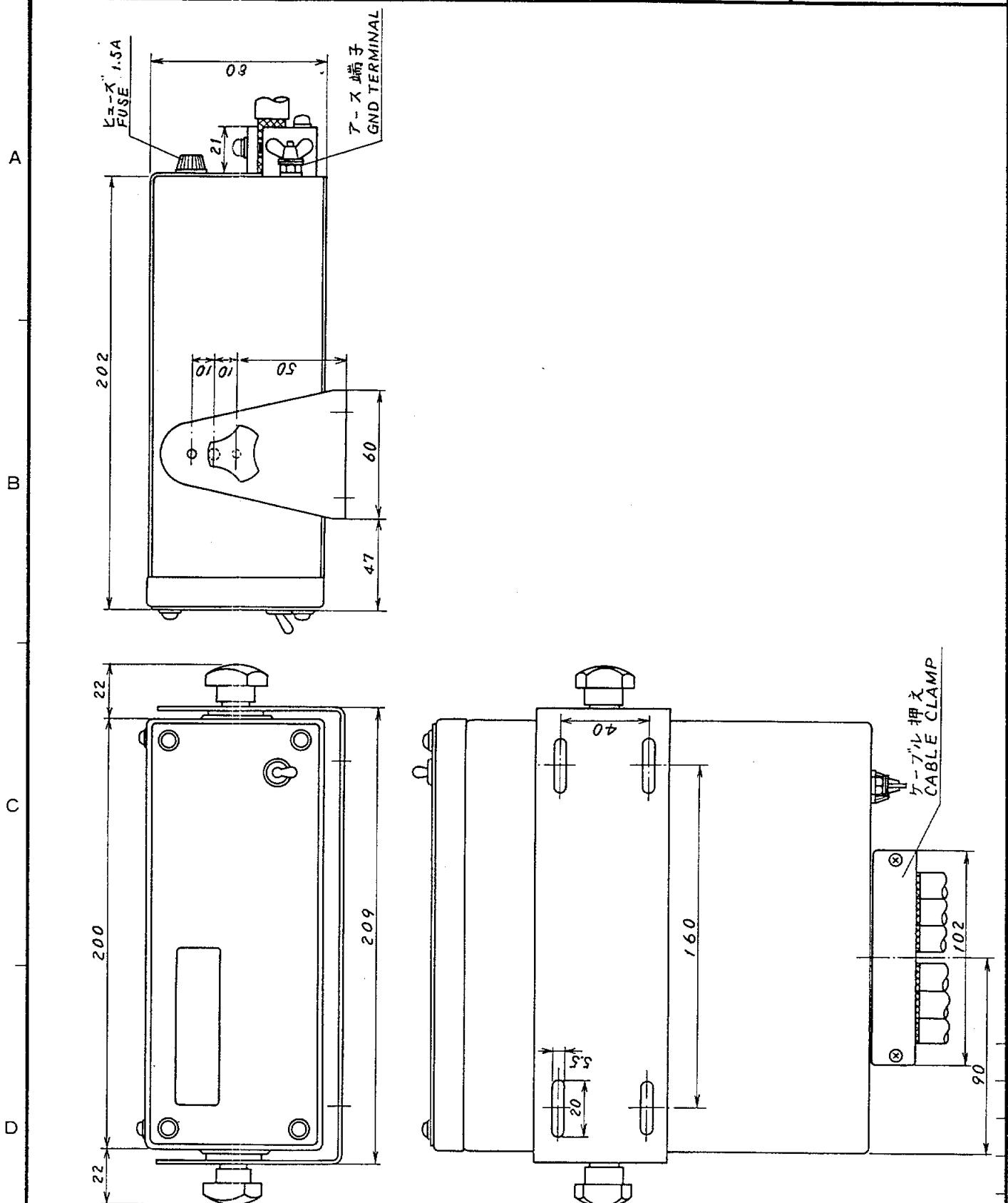
### 3. Fabrication of Data Cable

Fabricate the data cables as below and solder NH connectors to the cable ends, referring to the cabling diagrams.



### 4. Connection

Connect the data cables to the respective jacks on the interface PCB and the power cable to the terminals #1 (+) and #2 (-) on the power supply PCB. Remove the top cover of IF-5000 to get access to jacks and terminals.



	品番 ITEM	品名 NAME	材質 MATERIAL	数量 Q'TY	図番 DWG. NO.	摘要 REMARKS	
承認 APPROVED	SEP. 14. '81 <i>K. Kato</i>	三 角 法 THIRD ANGLE PROJECTION	名 称 TITLE	インターフェース・ユニット外観図 INTERFACE UNIT			
検図 CHECKED	SEP. 14. '81 <i>C. H. H.</i>	尺 度 SCALE	1 / 2.5				
製図 DRAWN	Sep. 14. '81 <i>H. Nakayama</i>	重 量 WEIGHT	2.5 kg	図番 DWG. NO.	C 4 2 7 4 - 0 0 1 - B		

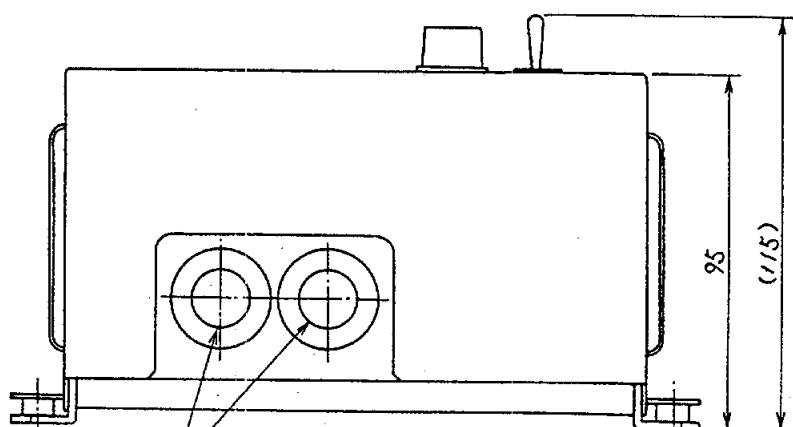
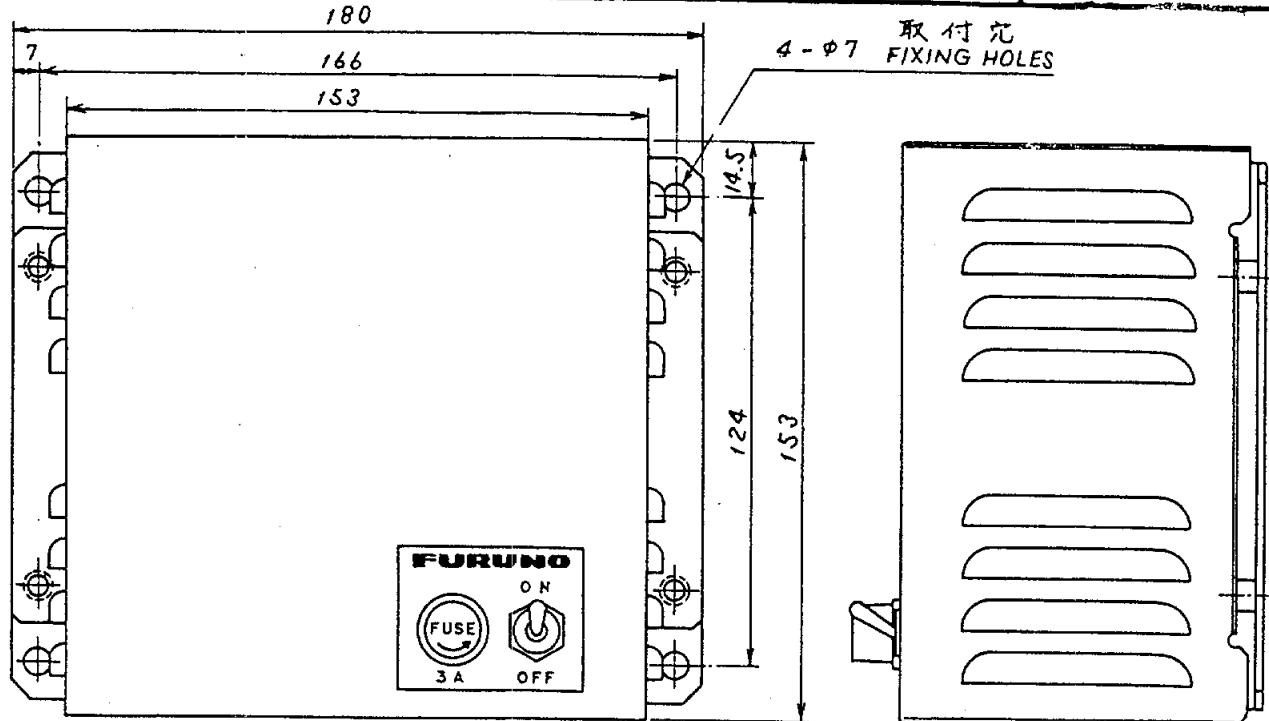
**FURUNO**

1

2

3

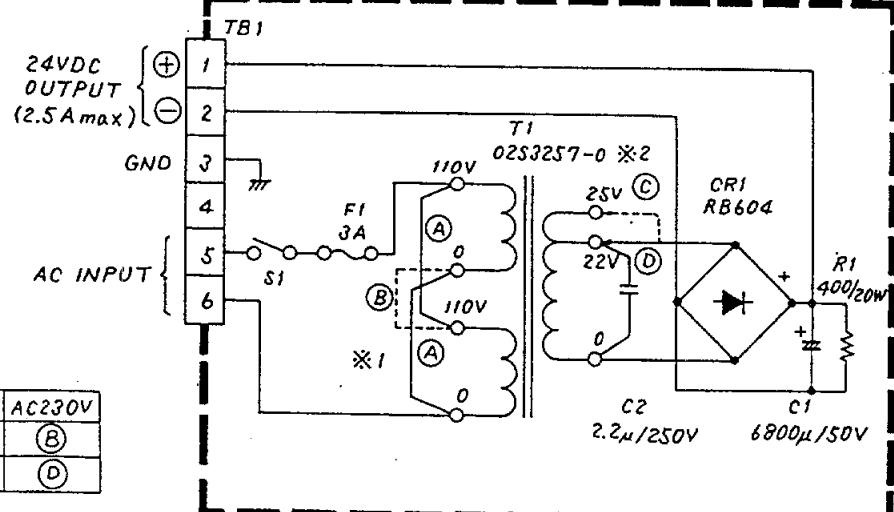
D - 2



ケーブル導入口  
CABLE ENTRY

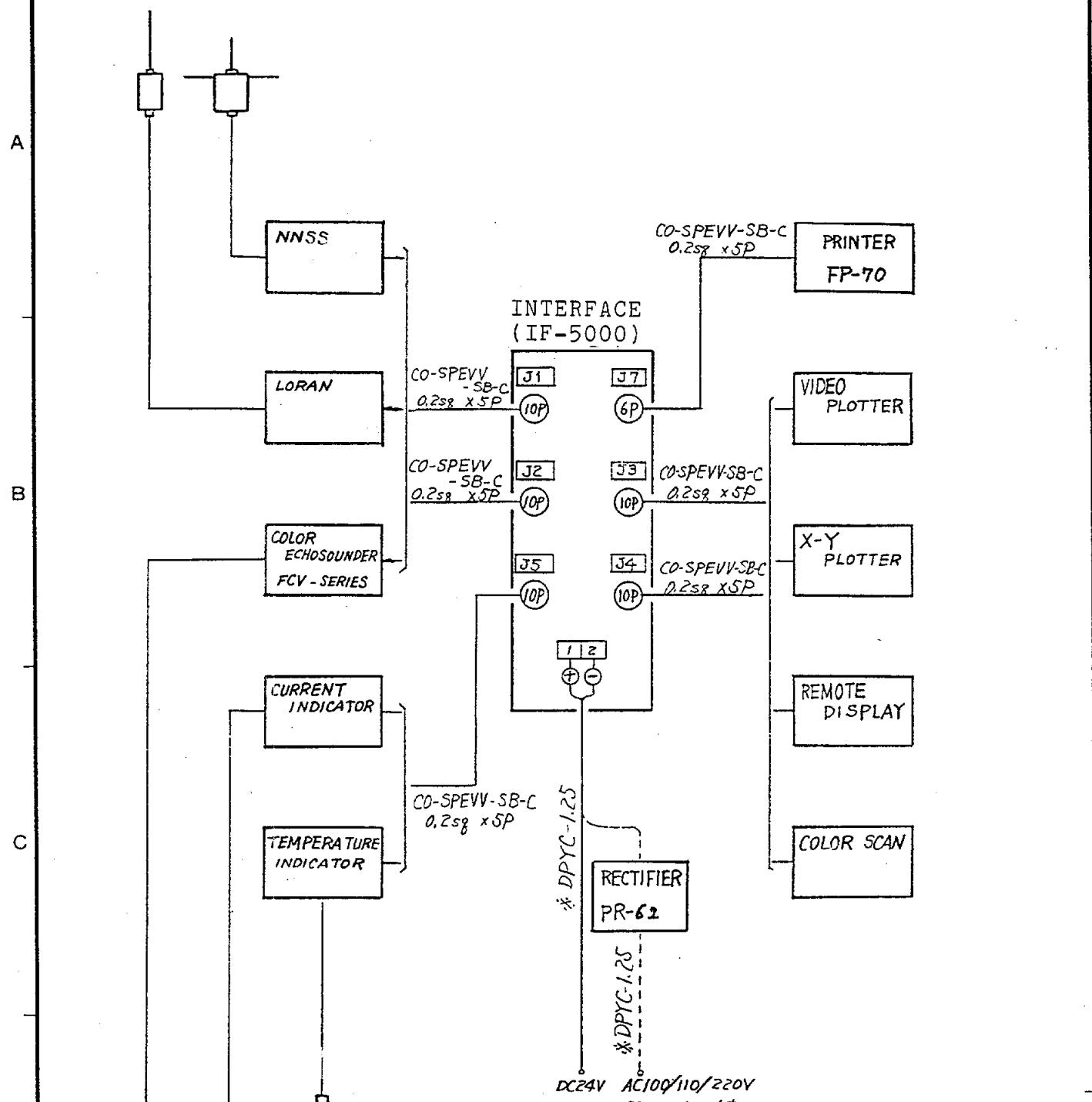
CABLE ENTRY

CABLE ENTRY



	ITEM	NAME	MATERIAL	Q'TY	DWG. NO.	REMARKS
承認 APPROVED	JUN. 14 189	三 角 法 THIRD ANGLE PROJECTION	名 称 TITLE			整流器外観図 RECTIFIER UNIT
検 図 CHECKED	JUN. 14 189 in progress	尺 度 SCALE	1/2		PR-62	
製 図 DRAWN	6.17.84 in progress	重 量 WEIGHT	3 kg	図 番 DWG. NO.	C 5 0 0 3 - 0 3 4 - C	

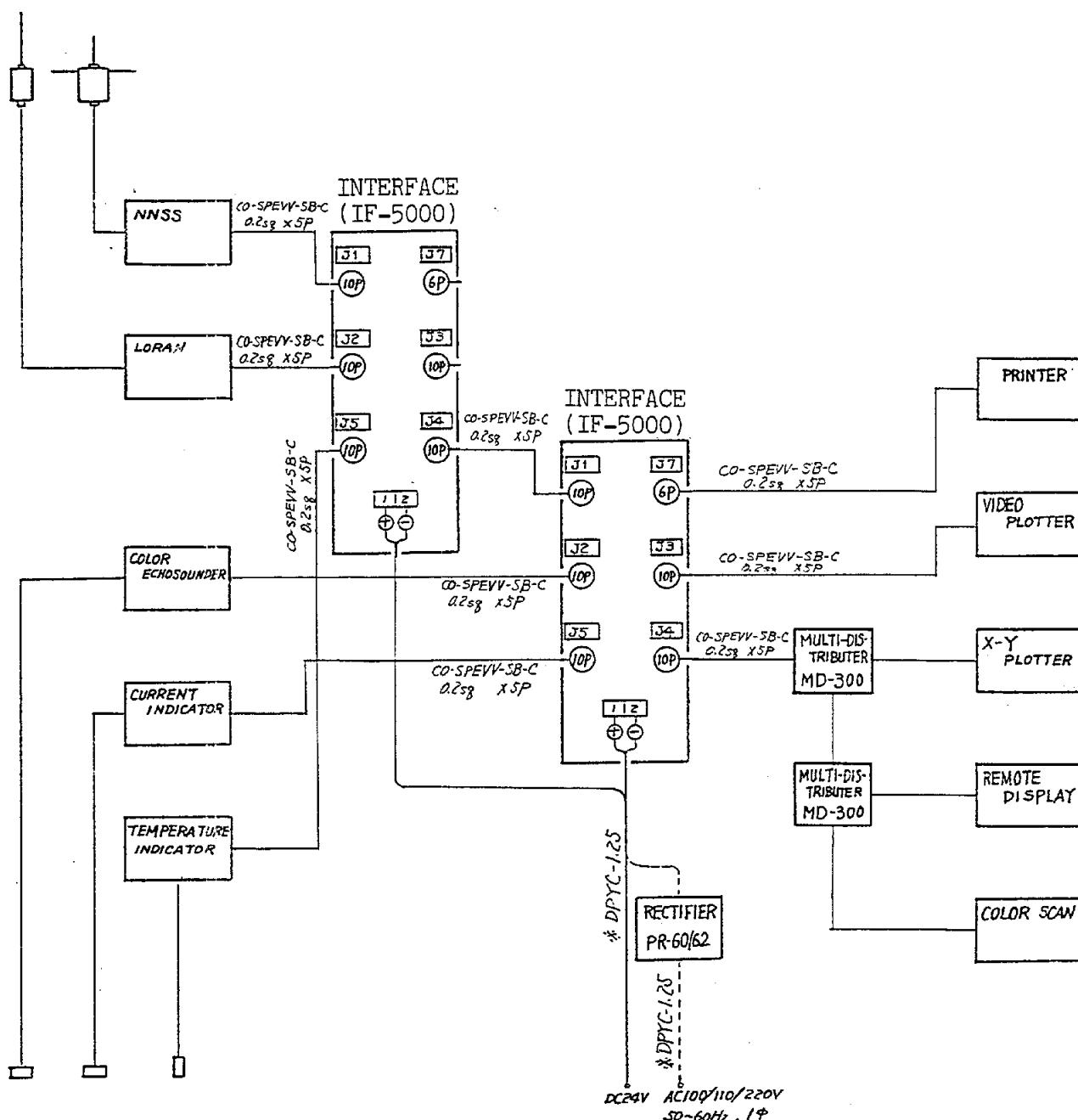
FURUNO ELECTRIC CO., LTD.



※ 造船所支給  
SHIPYARD SUPPLY

品番 ITEM		品名 NAME		材質 MATERIAL	数量 Q'TY	図番 DWG. NO.	摘要 REMARKS		
承認 APPROVED	• •	三角法 THIRD ANGLE PROJECTION		名称 TITLE インターフェースユニット相互連絡図					
検図 CHECKED	• •	尺度 SCALE	/	INTERFACE UNIT SYSTEM DIAGRAM					
製図 DRAWN	• •	重量 WEIGHT	kg	図番 DWG. NO.					

A



D

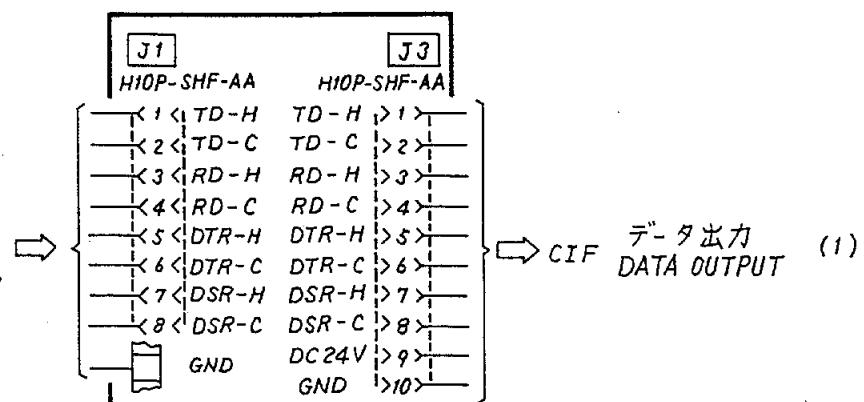
※造船所支給  
SHIPYARD SUPPLY

IF-5000		品番 ITEM	品名 NAME		材質 MATERIAL	数量 Q'TY	図番 DWG. NO.	摘要 REMARKS			
承認 APPROVED	• •	三 角 法 THIRD ANGLE PROJECTION		名 称 TITLE インターフェースユニット相互連絡図		INTERFACE UNIT SYSTEM DIAGRAM					
検図 CHECKED	• •	尺 度 SCALE	/								
製図 DRAWN	K. K.	重 量 WEIGHT	kg	図 番 DWG. NO.							

IF-5000 インターフェイスユニット  
INTERFACE UNIT

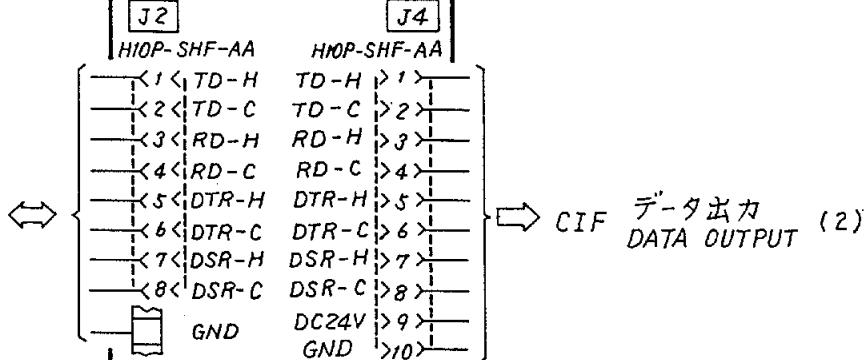
A

主航法/拡張インターフェースデータ入力  
DATA INPUT FROM  
MAIN NAVIGATION SYSTEM OR  
EXTENSION INTERFACE



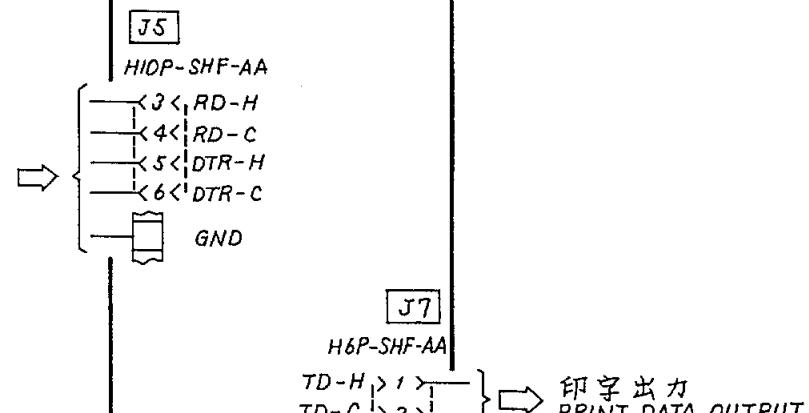
B

従航法スは水深値の  
データ入出力  
DATA INPUT FROM  
SUB NAVIGATION SYSTEM OR  
DEPTH DATA INPUT/J1 DATA  
OUTPUT



C

潮流/水温データ入力  
CURRENT DATA INPUT OR  
TEMPERATURE DATA INPUT



D

船内電源 又は 整流器  
SHIP'S MAINS OR RECTIFIER

DC10~42V ○ → DPYC-1.25 シロ  
WHT 1 +  
BLK 2 -

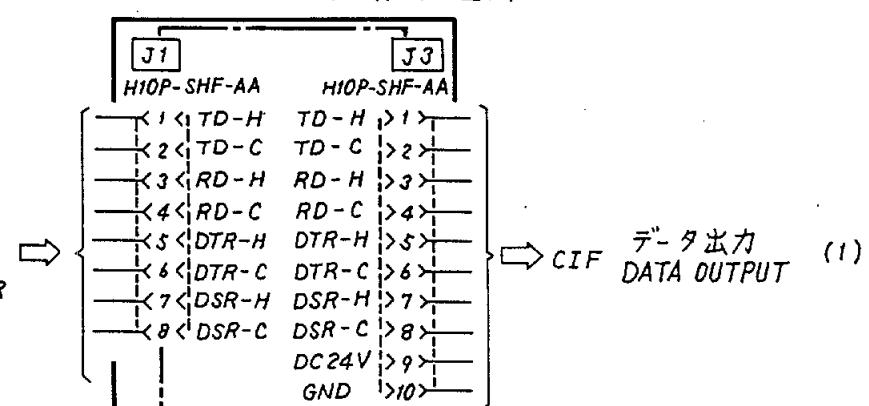
NOTE ※: 造船所支給  
SHIPYARD SUPPLY

品番 ITEM	品名 NAME	材質 MATERIAL	数量 Q'TY	図番 DWG. NO.	摘要 REMARKS
承認 APPROVED	FEB. 20. '87 T. NAKANO	三 角 法 THIRD ANGLE PROJECTION	名 称 TITLE	IF-5000 インターフェース入出力図 IF-5000 INTERFACE I/O CONNECTION	
検査 CHECKED	Feb. 20. '87 I. Amano	尺 度 SCALE	/		
製図 DRAWN	Feb. 19. '87 M. Matsuura	重 量 WEIGHT	kg	図番 DWG. NO.	C4274-007-A

FP-70/IF-5001 プリント  
PRINTER

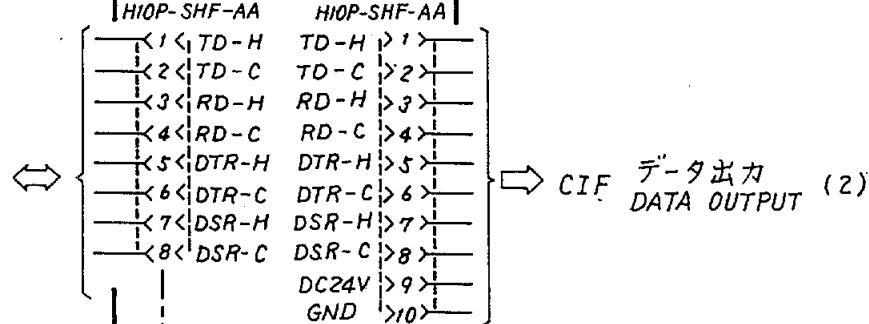
A

主航法/拡張インターフェース入力  
DATA INPUT FROM  
MAIN NAVIGATION SYSTEM OR  
EXTENSION INTERFACE



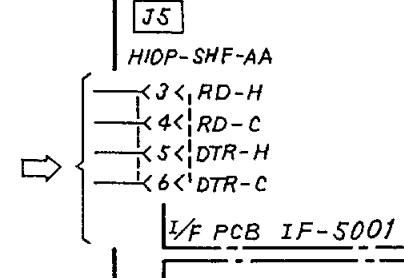
B

従航法又は水深値の  
データ入出力  
DATA INPUT FROM  
SUB NAVIGATION SYSTEM OR  
DEPTH DATA INPUT/J1 DATA  
OUTPUT



C

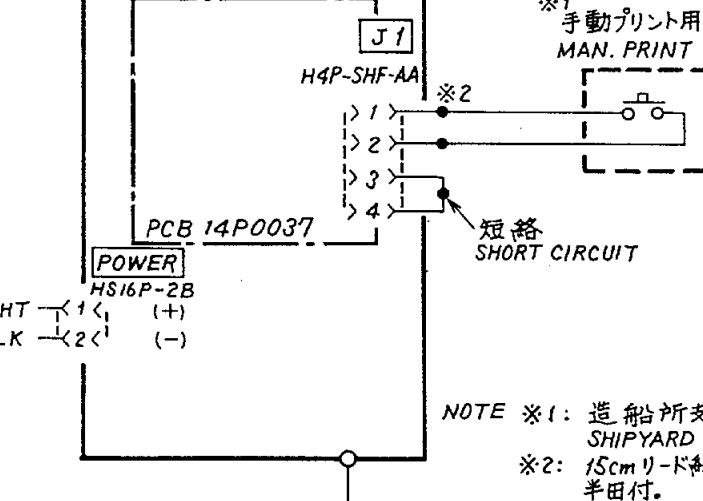
潮流/水温データ入力  
CURRENT DATA INPUT OR  
TEMPERATURE DATA INPUT



D

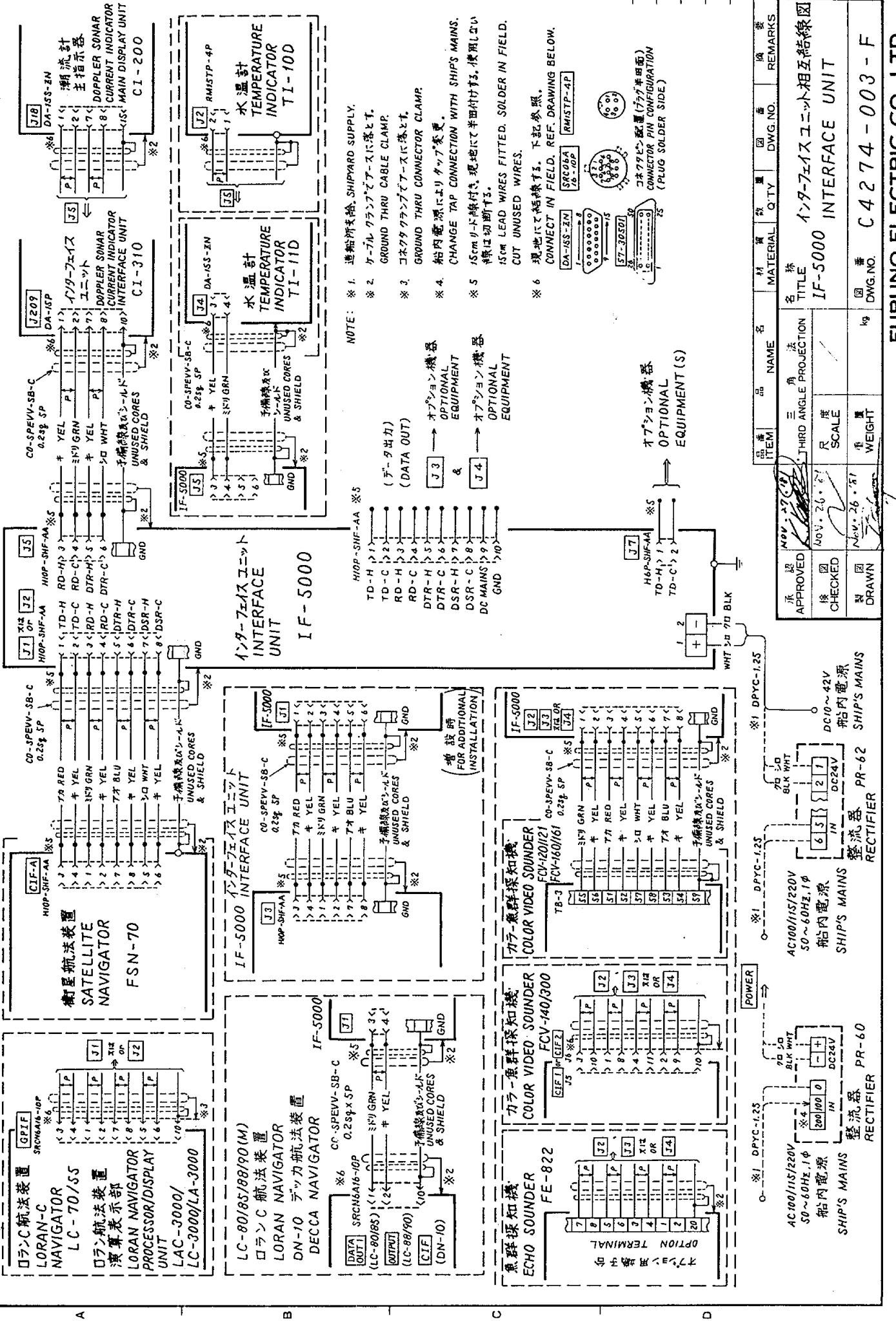
船内電源 又は 整流器  
SHIP'S MAINS OR RECTIFIER

DC10~42V → \*DPYC-1.25 → シロ WHT → 1 (+)  
クロ BLK → 2 (-)

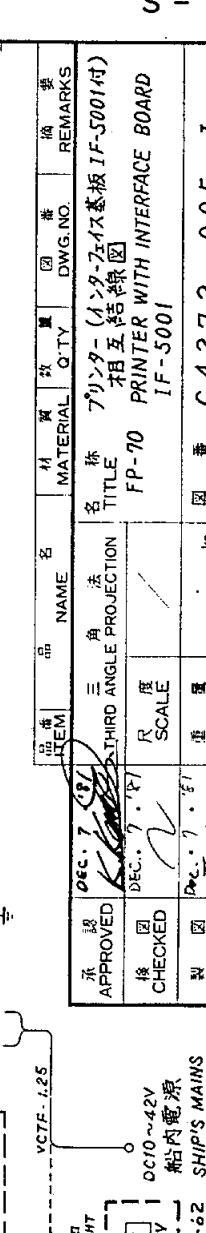
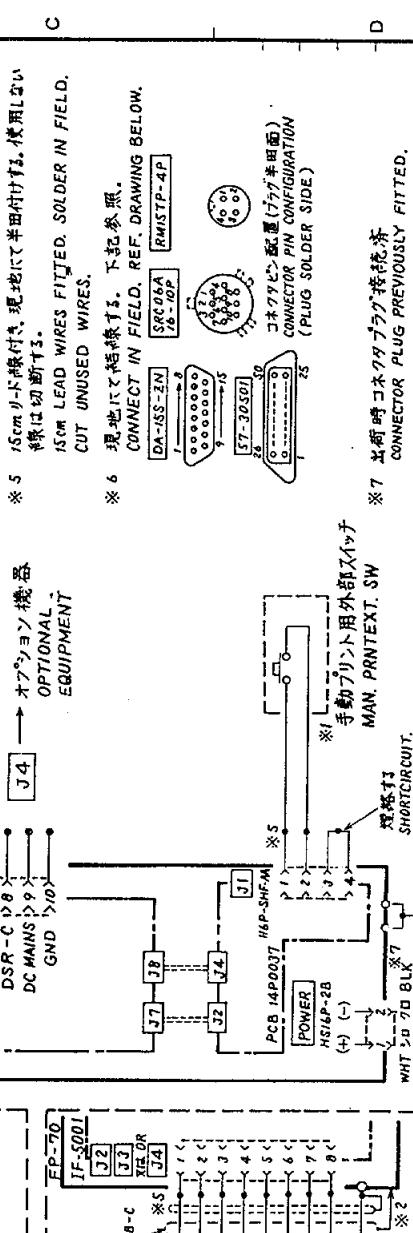
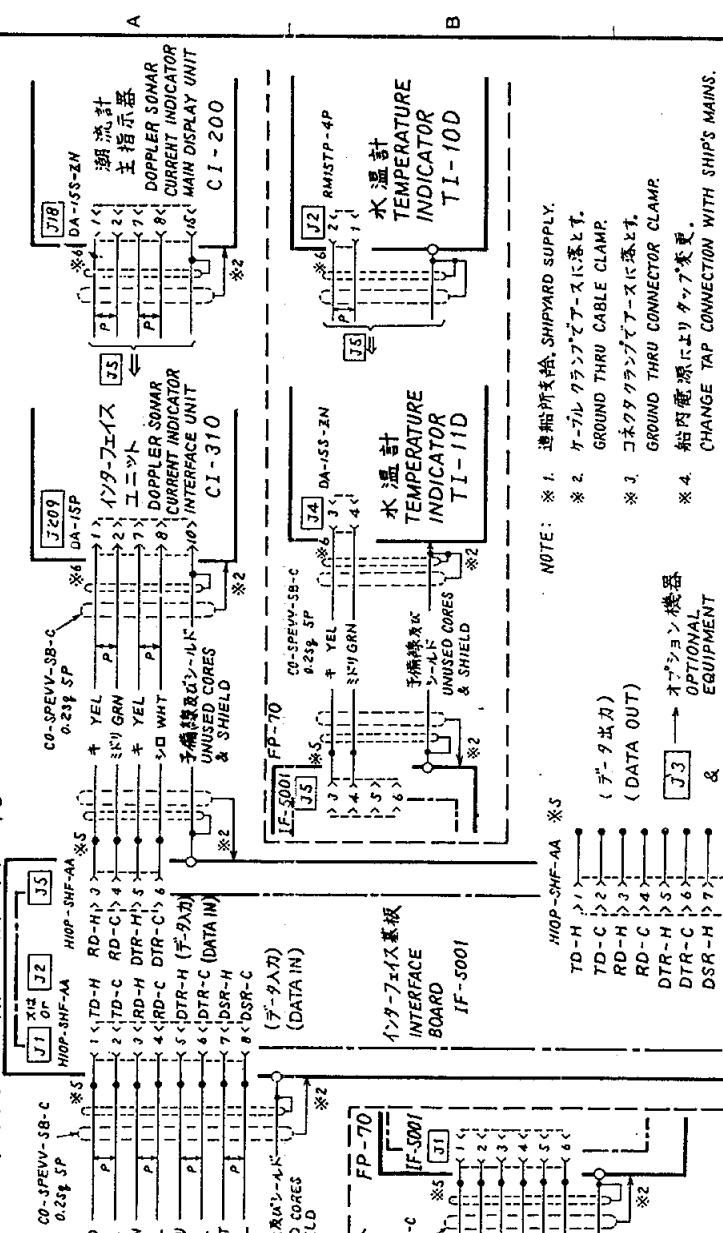
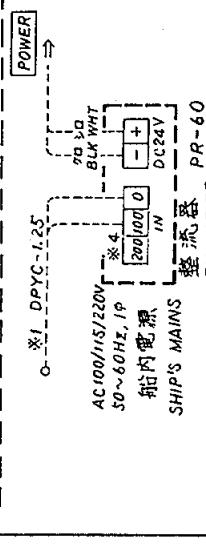
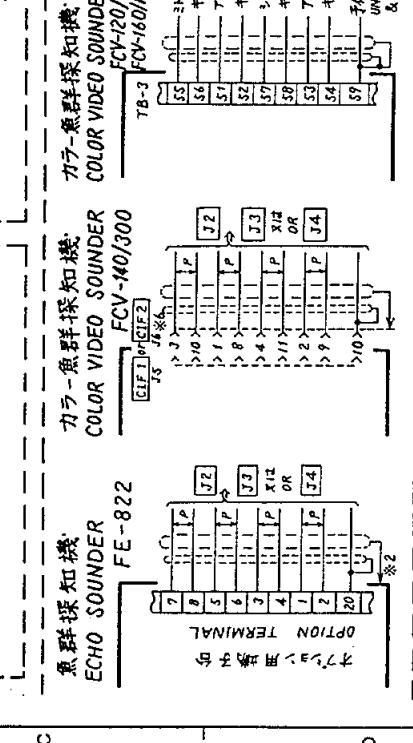
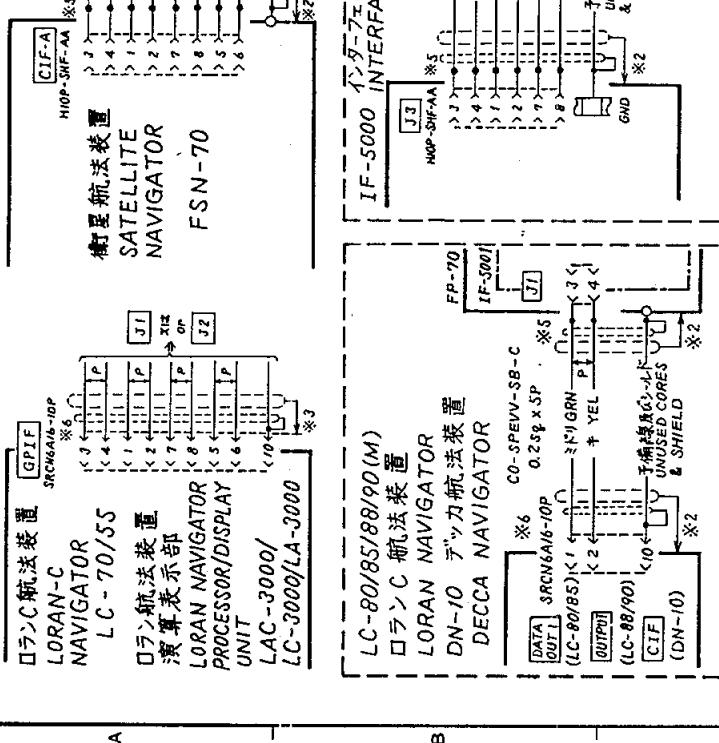


NOTE  
 ※1: 造船所支給。  
 SHIPYARD SUPPLY.  
 ※2: 15cmリード線付、現地にて  
 半田付。  
 15CM LEADWIRES FITTED.  
 SOLDER IN FIELD.

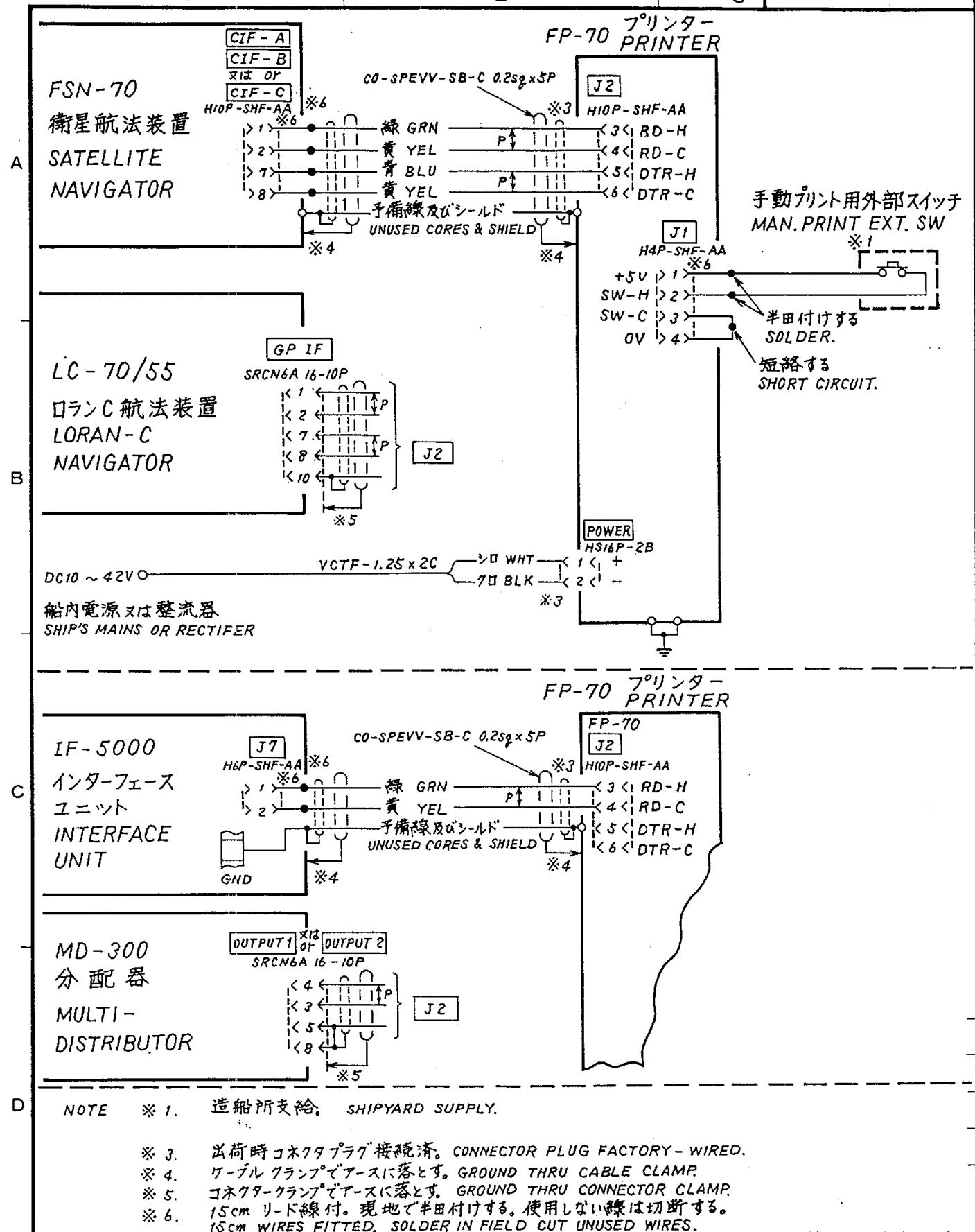
	品番 ITEM	品名 NAME		材質 MATERIAL	数量 Q'TY	図番 DWG. NO.	摘要 REMARKS
承認 APPROVED	FEB. 20. '87 T. NAKANO	三 角 法 THIRD ANGLE PROJECTION		名 称 TITLE			プリント入出力図 PRINTER I/O CONNECTION
検査 CHECKED	Feb. 20. '87 I. Amano	尺 度 SCALE	/	FP-70/IF-5001			
製図 DRAWN	FEB. 19. '87 Matsunaga	重 量 WEIGHT	kg	図 番 DWG. NO.	C4272-009-A		



アリナタ-PRINTER FP-70



**FURUNO ELECTRIC CO., LTD.**

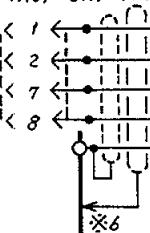


承認 APPROVED	MAR. 3 '87 T. IAKANO	三 角 法 THIRD ANGLE PROJECTION	名 称 TITLE	プリンタ 相互結線図 FP-70 PRINTER INTERCONNECTION DIAGRAM
検圖 CHECKED	Feb. 27 '87 I. Amario	尺 度 SCALE		
製圖 DRAWN	Feb. 28 '87 D. MITSUYAMA	重 量 WEIGHT	kg	図 番 DWG. NO. C4272-004-G

IF-5000/3300

インターフェース  
ユニット  
INTERFACE  
UNITJ 3 or  
J 4

H10P-SHF-AA \*7



※6

(半田面)  
(SOLDER SIDE)CO-SPEVV-SB-C  
0.25g x 5P\* YEL  
シロ WHT  
キ YEL  
アオ BLU  
予備線及びシールド  
UNUSED CORES & SHIELDMD-300  
MD-500分配器  
MULTI-DISTRIBUTER

INPUT

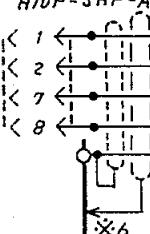
SRCN6A16-10S

鎧装  
ARMOR

FP-70

プリンタ-(IF-5001付)  
PRINTER(W/IF-5001)J 3 or  
J 4

H10P-SHF-AA \*7



※6

CO-SPEVV-SB-C  
0.25g x 5PMD-300  
MD-500分配器  
MULTI-DISTRIBUTER

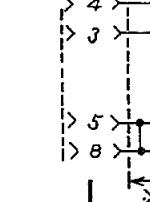
INPUT

SRCN6A16-10S

鎧装  
ARMORMD-300  
MD-500  
分配器  
MULTI-  
DISTRIBUTOR

OUTPUT

SRCN6A16-10P

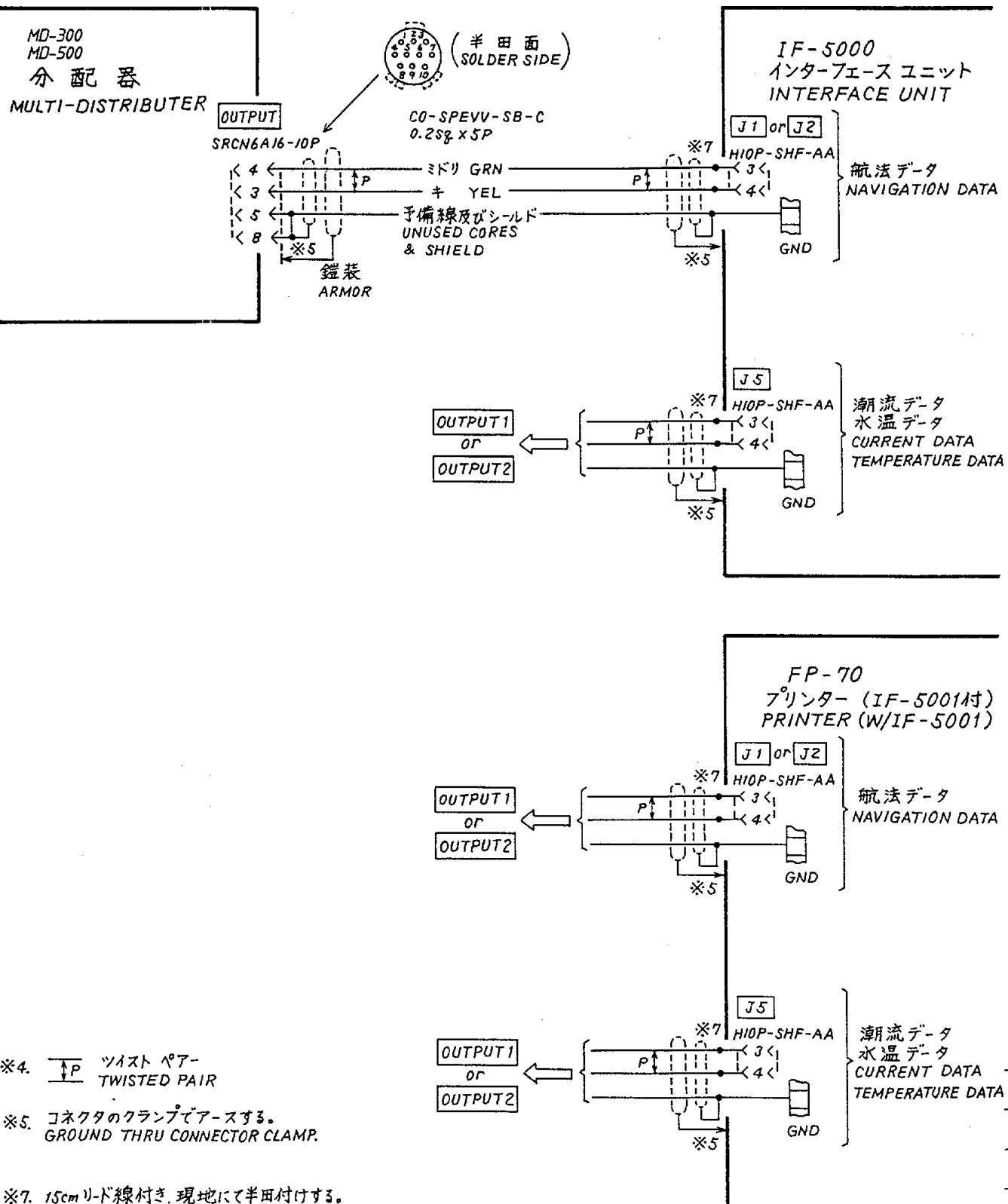


※5

※4. ツイストペア  
TWISTED PAIR※5. コネクタのクランプでアースする。  
GROUND THRU CONNECTOR CLAMP.※6. ケーブルクランプでアースする。  
GROUND THRU CABLE CLAMP.※7. 15cmリード線付き、現地にて半田付けする。  
使用しない線は切断する。  
15cm LEAD WIRES FITTED. SOLDER IN FIELD.  
CUT UNUSED WIRES.

D

	品番 ITEM	品名 NAME	材質 MATERIAL	数量 Q'TY	図番 DWG. NO.	摘要 REMARKS
承認 APPROVED	JULY. 20. '87 T.NAKANO	三 角 法 THIRD ANGLE PROJECTION	名 称 TITLE	MD-300 MD-500	分配器相互結線図 MULTI DISTRIBUTOR	
検図 CHECKED	July. 20. '87 I. Amano	尺 度 SCALE	/		(インターフェース → 入力側) (INTERFACE → INPUT SIDE)	
製図 DRAWN	July. 16. '87 K. Kondo	重 量 WEIGHT	kg	図番 DWG. NO.	C 4 2 5 2 - 0 2 1 - B	



品番 ITEM	品名 NAME	材質 MATERIAL	数量 Q'TY	図番 DWG. NO.	摘要 REMARKS
承認 APPROVED	JULY. 17. '87 T. NAKANO	三 角 法 THIRD ANGLE PROJECTION	名 称 TITLE	MD-300 MD-500 MULTI DISTRIBUTOR	分配器相互結線図 MULTI DISTRIBUTOR
検図 CHECKED	July. 16. '87 I. Armano	尺 度 SCALE	/	(出力側 OUTPUT SIDE → インターフェース INTERFACE)	
製図 DRAWN	July. 16. '87 K. Kusano	重 量 WEIGHT	kg	図番 DWG. NO.	C 4 2 5 2 - 0 2 0 - B



REVISION RECORD OF OPERATOR'S/INSTALLATION MANUALMODEL: IF-5000/5001 PUBLICATION NO.: OM-E4274-0

REV. NO.	DATE	REVISED PAGE	DETAILS	PERSON IN CHG.
A		—	First Edition	
N	'97.1	i, ii iii s-3 s-4 s-5 s-6 s-7 s-8 s-9 s-10 s-11~s-14	PL記述追加 A-E付替 C4274-003-A → C4274-007-A C4272-005-J → C4272-009-A C4272-004-G → C4274-003-A C4247-001-J → C4272-005-J C4245-005-D → C4272-004-G C4271-005-E → C4252-021-B C4252-002H → C4252-020-B C4249-004J → C4274-005-A 回面削除	E13